

UNIVERSIDADE CATOLICA PORTUGUESA

PORTO

# The Navigator Company on the way to packaging!





## THE NAVIGATOR COMPANY

#### "MUCH MORE THAN A CONVENTIONAL PURE PULP OR GRAPHICAL PAPER PLAYER"



- An **integrated producer** of forest, pulp, paper, tissue, sustainable packaging solutions, and bioenergy;
- With a unique business model based on:
  - state-of-the-art factories on a worldwide scale, with cutting-edge technology.
  - an efficient cash cost structure and a successful differentiation strategy (Premium Products and Brands);
  - and innovating for growth from fossil to forest;
- It is recognized as a **benchmark in quality** in its sector;
- Annual turnover of 2,465 million euros, in 2022;
- More than 92% of Navigator's sales of goods are sold to 130 countries, across all five continents;
- Navigator is the 3rd largest Portuguese exporter of goods representing approximately 1% of Portugal's GDP and 3% of national goods exported, and generates the greatest National Value Added;
- Sustainability Leader

#### **BASED ON LARGE SCALE PRODUCTION MILLS** WITH STATE-OF-THE-ART TECHNOLOGY



With global capacity of:

#### 1.6 Mt of Paper – 1.6 Mt of Pulp – 165 kt of Tissue Reels – 381 MW of Energy



\*total nominal capacity

#### **LEADING MANUFACTURER** OF UWF PAPER IN EUROPE | 2022



**N°1 in European UWF fine paper** by capacity, with the largest and most modern mills



Source: RISI; NVG

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#### WITH THE FOREST AT THE HEART OF EVERYTHING WE DO



#### A NATURAL AND RENEWABLE RESOURCE



Navigator has the largest certified forest nursery in Europe with capacity to produce 12 million plants/year

#### BIODIVERSITY

Forest management reconciles production with **species conservation** 

#### PROTECTION

€ 4.7 million invested annually in the prevention and support of fire fighting

#### CERTIFICATION

Certified forest under:



**EUCALYPTUS GLOBULUS** wood differentiates this species from other eucalyptus or hardwood species given the quality of its (short) fibers, providing higher thickness, specific volume, opacity and drying capacity. Due to its morphology, Eucalyptus allows 2-6 more recycling cycles compared to other paper fibers

#### THE FOREST AT THE HEART OF EVERYTHING WE DO a natural and renewable resource







*Eucalyptus globulus* is the perfect answer for cellulose-based packaging against fossil based raw materials.



SUSTAINABILITY QUALITY & PROTECTION HY FUNCTIONALITY & S

HYGIENE & SAFETY

## Saving resources

Efficient use of resources from a "*More with Less*" standpoint, allowing the production of the same volume of paper bags or boxes with less wood, or the same volume with up to half of the wood, compared to packaging produced from pine trees:



Eucalyptus globulus





Pinus Taeda Pinus Sylvestris



#### **Optimizing the forest land**

A higher turnover and productivity enables, with the same forest area, a production of up to 7 times more square meters of packaging.



#### **Recover - Recycle - Reuse**

Due to its morphology, this species of eucalyptus (globulus) is also recognised for allowing 2 to 6 more recycling cycles when compared to other paper fibres. Further recycled products with higher quality.

#### HIGHER RECYCLABILITY RATE (# of recycling cycles)

Eucalyptus globulus

Wood fibre sample nº 1

Wood fibre sample  $n^{\circ} 2$ 





The **low lignin content of UWF bleached paper** products allows **lower chemical charges** due to milder cooking and bleaching conditions.

While enables a **faster rate of biodegradation** compared to other paper products.

The uncoated unbleached brown still has faster rate of biodegradation than newsprint, for example.



#### **Carbon Neutrality**

We're committed to bring forward carbon neutrality to 2035. Reducing industrial sites' direct  $CO_2$  emissions by 86% (2035 vs 2018). By shifting the source of energy to sole renewable sources and offsetting the residual fossil based emissions.



## **Certified forests**

Our forestry operations are vertically integrated. We are fully responsible for planting a vast area of forest in Portugal, 100% certified under the FSC® and PEFC<sup>™</sup> systems.







## QUALITY AND FUNCTIONALITY

Engineered for superior performance

# EXCELLENT PAPER

Perfect harmony in the distribution of fibres across the sheet, meeting quality standards in both sides of the sheet.

### PRINTING CONSISTENCY

Meeting the highest demands of brand owners, delivering perfect printing quality in a wide range of colours and printing techniques.

#### AN EXTRA SMOOTH FINISH

Machine finished quality with equal smoothness in both sides of the sheet.

### GUARANTEED CONVERTING PERFORMANCE

Stiffer and bulkier paper trustworthy of the requirements of several different machines.



Papers made from recycled fibres lose strength and stiffness compared to papers made from virgin fibres.

Brittleness or cracking increases at low humidity making the recycled fibre paper less resistant to damage, namely on the edges.

#### OUR FIBRE

RECYCLED FIBRE

# PROTECTION

# AT MINIMUM WEIGHT

**gKraft** packaging boxes using *Eucalyptus globulus* 120 g/m<sup>2</sup> achieve the same SCT\* requirements as competitors using other fibres with 130 to 140 g/m<sup>2</sup>, guaranteeing weight **savings** in the range of 8%-17% on the same packaging boxes.

# HIGHER HUMIDITY

Compression tests (CT) are generally performed in a sample of corrugated board (ECT) or in a box (BCT), before and after being submitted 48h to 90% HR @ 20°C. Before, values are normally higher in virgin fibre product.

After being submitted 48h to 90% HR @ 20°C, recycled fibre product's CT values normally go down by 60% while virgin fibre product's CT values goes down by 40%.

\*Short-span Compression Test Source: Navigator Company benchmarking Up to -20g/m<sup>2</sup>

ACHIEVING THE SAME SCT\* LEVEL AS OTHER COMPETITORS USING UP TO -20g/m<sup>2</sup>



BCT

SAVINGS ON THE SAME PACKAGING BOXES

ECT

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HYGIENE & SAFETY

100%

**VIRGIN FIBRES** 

#### A SAFE AND HEALTHIER OPTION

When in contact with skin and food, gKraft it's safer and healthier compared to recycled papers which have already been banned in some European countries whenever there is direct contact with food since they contain harmful quantities of chemicals, like Bisphenols and Mineral Oils.

Approved for food contact papers by ISEGA, the German institute for certification of packaging products and approved as well by InnovHub in Milan.

gKraft guarantees the maximum safety of its products targeting the food industry, as an example many Italian *"pizzaiolos"* already use today our paper in the production of pizza boxes, assuring risk free contamination.





innovazione e ricerca



# **HYGIENE & SAFETY**

100% **VIRGIN FIBRES** 



#### BACTERIOLOGICAL FREE

Packaging made of recycled paper has shown presence of bacteria and other microorganisms while virgin fibre is bacteriological free.\*



#### FREE OF MICROBES

Although papermaking process drastically reduces the total microbial counts, recycled paper packaging shows presence of bacteria and other microbes, while virgin fibre packaging is free of microbes.\*\*



	TESTS UNIVERSITY OF AVEIRO	AEROBIC BACTERIA PRESENCE	ANAEROBIC BACTERIA PRESENCE	FUNGUS & YEAST PRESENCE	
PAPER FOR RETAIL BAGS	RECYCLED FIBRE VIRGIN FIBRE GKRAFT	YES NO	YES NO	NO NO	
PAPER FOR CORRUGATED BOARD BOX	RECYCLED FIBRE VIRGIN FIBRE GKRAFT	YES	YES NO	YES NO	

\*Source: University of Aveiro/Raiz benchmarking

\*\*Source: https://sfamjournals.onlinelibrary.wiley.com/doi/pdfdirect/10.1046/j.13652672.1997.00219.x

#### **KEY INDUSTRIES BRAND & ARCHITECTURE**

# gKraft

Extra white Natural white Brown 80 – 120 g.m<sup>-2</sup> 40 – 130 g.m<sup>-2</sup> 40 – 130 g.m<sup>-2</sup>

Designed to develop flexible packaging for: Food & Filling Industries, Wrapping papers, Envelopes, etc

### KRAFT

Extra white Natural white Brown 80 – 190 g.m<sup>-2</sup> 70 – 140 g.m<sup>-2</sup> 70 – 140 g.m<sup>-2</sup>

Intended for product packaging used in: Food & Filling Industries, Shopping bags, Carrier Bags, Restaurant pouches, Pharma bags, Bakery bags, etc.



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## **GKRAFT**

Extra white Natural white Brown 80 – 250 g.m<sup>-2</sup> 80 – 180 g.m<sup>-2</sup> 80 – 140 g.m<sup>-2</sup>

Applied in solutions for: -Corrugated board (Agriculture, Industry, Retail & E-commerce) -Cartonboard (Food trays and Burger boxes)



## AVAILABLE FOR A WIDE RANGE OF BUSINESS NEEDS DIVIDED IN THREE SUB-BRANDS



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was designed to develop **flexible packaging** for:

1	SUB-SEGMENT	GRAMMAGE	DESCRIPTION
<u>GKRAFT</u>	FORMFILL	75 - 100	Bags used for <b>stable food items</b> such as sugar, flour, etc. Fill-in process sets requirements for the paper.
	ENVELOPE	35 - 140	Envelopes used for <b>normal post</b> or <b>e-commerce sales</b> with single sheet or incorporation of layers or other materials.
	FLEXPACK	35 - 90	<b>Flexpack food</b> (e.g. soft cheese, tea bags, single-packs for dry food, spices, lids, ice cream wraps) and <b>non-food</b> (e.g. pet food, tobacco, cosmetics and personal care, household detergents, twisting paper, cigarette paper (inner bundling)).
	MEDICAL	35 - 70	Paper used in <b>sterile medical packaging</b> and in the <b>sterilization process</b> of medical devices, syringes, dressings, catheters, drapes, gowns & gloves, procedure packs.



was designed to develop **flexible packaging** for:

Bong, Slide 21

SUB-SEGMENT	GRAMMAGE	DESCRIPTION
TAKE-AWAY	25 - 120	Lightweights, Sustainable Functional Barriers, Paper Straws: Wrapping paper used in hamburger wraps, sandwiches, baguettes, bags for fries. Wet strength paper.
RELEASE LINERS & GUMMING	30 - 80	Siliconized directly on paper, Paper PE extruded, Gumming: Refers to papers used to prevent a sticky surface from prematurely adhering.
INTERLEAVING	35 - 80	Steel and glass <b>interleaving paper</b> for <b>both coils and sheets</b> , eg. separate bottles of wine; interlayers for pallets; car painting.
FORMBOARD	160 - 250	<b>Cupstock, Thermoforming:</b> Mechanical & thermoformed board for cups, trays, disposable dishes, etc.
BUILDING & CONSTRUCTION	40 - 70	Refers to <b>papers</b> used for <b>insulation</b> , in walls, pipes, electric cables, etc.



#### MEDICAL



#### INTERLEAVING







## AVAILABLE FOR A WIDE RANGE OF BUSINESS NEEDS DIVIDED IN THREE SUB-BRANDS





Strat 1

was intended for product packaging used in:

	SUB-SEGMENT	GRAMMAGE	DESCRIPTION
.9KRAFT	CARRIER BAGS	70 - 140	<b>Fashion bags:</b> Carrier bags used for <b>high-end segment</b> for retails (flat & twisted handle) <b>Food retail bags:</b> Carriers bags used for <b>bulk supermarket</b> segment or retail (open mouth, flat & twisted handle)
	CONSUMER BAGS	35 - 80	Bags used in <b>bakery products</b> and to some extent in <b>vegetables.</b>
gravet	MULTIWALL BAGS	50 - 100	Bags used in <b>industrial applications</b> (cement, animal and pet food, etc).

## AVAILABLE FOR A WIDE RANGE OF BUSINESS NEEDS DIVIDED IN THREE SUB-BRANDS





was designed to be applied in solutions for:

SUB-SEGMENT	GRAMMAGE	DESCRIPTION
CORRUGATED BOARD	80 - 250	Kraftliners for production of corrugated board.
 BOARD BOXES & TRAYS	160 - 250	Solid boards for production of boxes and trays.



gKRAFT QUICK VIEW

\_IT IS MADE OF **PREMIUM FIBRES** Paper 100% made from virgin fibres

\_IT IS PARTICULARLY **SUSTAINABLE** More packaging with less wood and lower forest area

\_IT IS RECYCLABLE, REUSABLE AND BIODEGRADABLE More recyclable cycles and fully compostable

\_IT IS FULLY CERTIFIED Sourced from responsibly managed forests with FSC and PEFC certificates

\_IT REDUCES THE TOTAL COST OF PACKAGING

Enables the use of less paper to achieve the same resistance

\_IT PROVIDES SUPERIOR QUALITY AND FUNCTIONALITY

Good performance in converting equipment and during its life cycle Excellent printing quality

\_IT MEETS HYGIENE AND SAFETY STANDARDS Clean and free of bacteria and fungus, being suitable for skin and food contact